

## **REMARKS**

In the office action dated January 12, 2004, Claims 1, 6, 9 and 11-16 were rejected under 35 USC §102(b) as being anticipated by each of Wong et al '069 and Wong et al '137. Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over each of Wong et al '069 and Wong et al '137.

These rejections are respectfully traversed for the following reasons.

The disclosures of the two Wong et al references are identical (one being a divisional of the other) and therefore Applicants remarks below refer to both of these references. There is no need to discuss either of these references individually,

In substantiating the rejections of the claims based on the teachings of Wong et al, the Examiner is considering the wedge-shaped conductors 45 disclosed in those references as corresponding to "antenna elements" as set forth in the claims of the present application. Applicants submit that this not consistent with the normally understood definition of "antenna element" employed by those of ordinary skill in the field of antenna design. Those of ordinary skill in this field do not employ the term "antenna element" as meaning any element or component of any type which happens to be incorporated in an antenna structure. Those of ordinary skill in the field of antenna design define an "antenna element" as being an element that either radiates or receives electro-magnetic energy. Since many antennas, for example, have non-conductive components for mechanically supporting the conductive components, if the Examiner's definition of "antenna element" were adopted, this would mean that a component composed of plastic, for example, could be an "antenna element." No person of ordinary skill in the field of antenna design, however, would employ such a broad definition.

Moreover, the inventors in the Wong et al references clearly did not refer at any location to the conductors 45 as being antenna elements. The antenna elements are always consistently referred to in the Wong et al references as being the antenna rods 40, as discussed below. Therefore, the Wong et al references support Applicants' usage of the term "antenna element" as being an electro-magnetic energy radiating or transmitting element, and do not support the

Examiner's definition of "antenna element" as being any component that happens to be a part of an antenna.

Applicants recognize the Examiner is required to give every term in a claim its broadest reasonable interpretation and meaning, however, this does not permit the Examiner to employ definitions and interpretations which are at odds with the commonly understood definitions employed by those in the relevant field of technology. If the Examiner were permitted to do so, this would mean that virtually no generally accepted definitions could be used for any meaningful purpose in a patent claim, and every term in a claim would have to be specifically defined within the claim language itself. Clearly, this is not required by any provision of Section 112. Any patentee is permitted to use terms in a patent claim consistent with their commonly understood definition in the relevant field, without having to burden the claim language with specific definitions of such well-understood terms.

Even though Applicants believe that the meaning of "antenna elements" is clear to those of ordinary skill in the field of antenna design, each of independent claims 1 and 14 has been amended to explicitly state the antenna elements emit or receive magnetic field energy at a magnetic resonance frequency. Clearly, none of the wedge-shaped conductors 45 in the Wong et al references perform, or are intended to perform, such a function.

This is made clear at numerous locations in the Wong et al references. (The column and line citations below are from Wong et al '069.)

First, as noted above, throughout the Wong et al references, the components designated with reference numeral 45 are never referred to as antenna elements, but are always consistently referred to as "conductors." The Wong et al references clearly and consistently distinguish between the conductors 45 and the antenna rods 40, which are the actual elements in the Wong et al antenna that radiate or emit electro-magnetic energy. The end cap 42, in which the conductive segments 45 are disposed, is intended merely to connect the antenna rods 40, and in this sense serves the same function as the end ring 41. Clearly, the end ring 41 would not be considered by those of ordinary skill in the art as being an "antenna element."

Moreover, the antenna rods 40 are clearly arranged in the manner of a well known birdcage antenna structure, and those of ordinary skill in the field of antenna

design would not refer to the end rings or ferrules of a birdcage antenna as being an "antenna element."

This nomenclature in the Wong et al references is also consistent with the various descriptions of the structure and operation of the antenna rods 40. For example, at column 6, lines 19 through 21, it is that the length of the elements 40 is chosen such that the RF coil 28 encloses the cranial volume, but does not extend over the patient's face.

This statement would be completely meaningless if the wedge-shaped conductors 45 were "antenna elements."

Additionally, at column 6, lines 48-50, it is stated that the shields on the cables 46 and 47 connect directly to the corresponding end cap segments 45 which serve as a signal ground. Something which serves as a signal ground cannot be a radiator or a transmitter.

Lastly, at column 6, lines 35-40, it is stated that the RF field produced by the coil 28 drops off very sharply in the axial direction. This could not be the case if the wedge-shaped conductors 45 in any manner served as radiators or receivers.

Therefore, not only due to the well-understood meaning of the term "antenna elements" used by those of ordinary skill in the field of antenna design, but also in view of the explicit language added in claims 1 and 14, the "antenna elements" of claims 1 and 14 cannot and do not read on the wedge-shaped conductors 45 in the Wong et al references. Therefore, neither of the Wong et al references discloses all of the elements of claims 1 and 14 as arranged and operating in those claims, and neither of those claims, nor any of the claims respectively depending therefrom, is anticipated by either of the Wong et al references.

Moreover, as to claim 14, even if the wedge-shaped conductors 45 are considered to be "antenna elements" (according to the Examiner's definition), it is clear that all of the wedge-shaped elements 45 are in the same plane. It is not understood how the Examiner is interpreting the Wong et al reference as disclosing antenna elements having element beginnings in an element beginning plane and element ends in an element end plane, with the element beginning plane and element end plane being parallel to and spaced from each other. Even if the conductor segments 45 in the Wong et al references are considered to be "antenna

elements," they have their respective beginnings and ends in the same plane. There are no planes in the Wong et al references in which the wedge-shaped conductors 45 are disposed that are "parallel to and spaced from each other" as required in claim 14.

As to claim 7, the Examiner acknowledged that the Wong et al reference does not explicitly state that the antenna elements have two branching element ends. The Examiner stated that it would have been obvious to a person of ordinary skill at the time the invention was made to provide the wedge-shaped conductors 45 with branching ends. Not only does this interpretation ignore the fact that the conductors 45 are not true "antenna element" but are instead conductors, it also ignores the fact that the conductors 45 are intended to form a signal ground, as noted above. There is no purpose that would be served by providing a branching of such a signal ground, and moreover this would defeat the purpose of arranging the conductors 45 to be a plate. In order to have branching, there must be openings in the plate in order to "separate" the branches. The purpose of forming the conductors 45 as wedge-shaped segments that are insulated from each other is to produce a continuous conductive unit, and thereby reduce the formation of eddy current loops (column 3, lines 8-18).

Claim 7, therefore, would not have been obvious to a person of ordinary skill in the field of antenna design based on the teachings of either of the Wong et al references.

A typographical error in claim 15 has been corrected.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,



(Reg. 28,982)

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